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# The southern African species of *Gyranusoidea* Compere (Hymenoptera: Encyrtidae)

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*Gyranusoidea litura* and *G. separata*, both of which were reared from mealybugs collected in the Cape Province, South Africa, are described as new. Additional distribution and host records are provided for five previously described African species of *Gyranusoidea* and a key is given to the eight species now known to occur in southern Africa.

*Gyranusoidea*, which was originally described from East Africa for *Gyranusa citrina* Compere by Compere in 1947, was hitherto known from six African, three Indian, and two Hawaiian species. It does, however, seem that *Gyranusoidea* is much more widely distributed. Noyes (1980) and Kerrich (1982) mention undescribed species of *Gyranusoidea* from the Neotropics and Australia, and *Neuranagyrus aphycoides* (Mercet), known from the Palaearctic region, also belongs to this genus.

Two new South African species of *Gyranusoidea* are described below, which brings the total of known sub-Saharan species to eight. The six previously described ones were, until now, known only from their original descriptions, except for *G. signata* Annecke & Mynhardt which was dealt with by Prinsloo (1981). Additional distribution, host and host plant records are provided here for five of these species, and it now appears that this genus is far more common in southern Africa than was originally thought, especially in the south western Cape where much of the available material has been reared from mealybugs associated with fynbos vegetation.

Annecke & Mynhardt (1970) provided a key and a generic diagnosis for the five species known at the time. A new key is provided here for separating the eight southern African species now assigned to *Gyranusoidea.*

Holotypes and paratypes of the two new species are housed in the National Collection of Insects, Plant Protection Research Institute, Pretoria; 1 female paratype of *G. litura* will be deposited in the British Museum (Natural History), London.

## Key to the southern African species of *Gyranusoidea* Compere

### FEMALES

1 Head and body more or less entirely yellowish-white to yellow, with few or no dark markings .......... 2
— Colour of head and body different from above .......... 6

2 Antennal scape weakly expanded ventrally, almost entirely pale, only the ventral margin somewhat marked with brown (fig. 12) (South West Africa) ........................ **klugei**

— Antennal scape strongly expanded ventrally and boldly marked with black ............... 3

3 Underside of thorax pale with the mesosternum and middle coxae blackish-brown to black in contrast; basal two-thirds or so of scape entirely blackish, the base not marked with white (fig. 12) (south western Cape; northern Transvaal) .......................... **litura**

— Venter of thorax and all coxae entirely pallid; basal end of antennal scape whitish, bordered distally by a blackish area .................................................... 4

4 Antennal flagellum slender to very slender, the distal funicle segment at least twice as long as broad; antennal radicle blackish ................................................ 5

— Flagellar segments less slender, the distal funicle segment plainly less than twice as long as broad; radicle usually whitish, rarely at most slightly brownish; shape and colour pattern of scape as in fig. 12 (Kenya; Angola; northern Transvaal; northern Natal) .......... **citrina**

5 Antennal flagellum unusually long and slender, the basal funicle segment more than 1,5 times as long as the pedicel, the distal segment about three times as long as broad (fig. 7); shape and colour pattern of scape as in fig. 12 (south western Cape) .............. **separata**

— Flagellar segments not as long and slender, the basal funicle segment shorter than the pedicel, the distal segment only a little more than twice as long as broad; colour pattern and shape of scape as in fig. 12 (northern Transvaal; northern Natal) .................. **munda**

6 Head and thorax strikingly reddish-orange to red; shape and colour pattern of scape as in fig. 12 (Cape Province; Orange Free State) ................................... **signata**

— Colour of head and thorax different, the antennal scape different in colour and shape ....... 7

7 Head largely yellowish, the thorax black dorsally, yellow ventrally and laterally; shape and colour of scape as in fig. 12 (south western Cape; Orange Free State) ............. **austrina**

— Head and thorax (except pronotum) a more or less uniform shade of brown, the face below the antennal sockets black; colour and shape of scape as in fig. 12 (south western Cape) **dilatata**

## *Gyranusoidea austrina* Annecke & Mynhardt, fig. 12

**Gyranusoidea austrina** Annecke & Mynhardt, 1970: 38–40.

This species was originally described from a single series taken at Moorreesburg in the Cape, and was reared from an undetermined mealybug on *Chrysocoma tenuifolia*. Two additional series of which the hosts are known, are recorded here. Specimens from these series do not show any significant colour or structural variation from the type-specimens.

*G. austrina* is readily distinguished by its black and yellow colour in both sexes and by the shape and colour pattern of the antennal scape as shown in fig. 12.

MATERIAL EXAMINED. Type-series of *G. austrina* as detailed in Annecke & Mynhardt (1970), and the following additional material: SOUTH AFRICA: Edenville, Orange Free State, i.1970, H. P. Insley, ex *Coccidohystrix* sp. on *Aster muricata*, 2 ♀ 2 ♂ (T 3317); Citrusdal, Cape Province, x.1970, H. P. Insley, ex *Distichlicoccus* sp. on *Chrysocoma longifolia*, 1 ♀ 1 ♂ (T 3660).

## *Gyranusoidea signata* Annecke & Mynhardt, fig. 12

**Gyranusoidea signata** Annecke & Mynhardt, 1970: 36–38; Prinsloo, 1981: 101–102.

This striking species was originally described from a short series reared from an undetermined mealybug collected at Paarl, Cape Province. Prinsloo (1981) recorded two additional series of this species, the one from the Cape, the other from the Orange Free State. Both these series were reared from mealybugs of the genus *Coccidohystrix*. A further five series are here recorded from the Cape, one of which was reared also from *Coccidohystrix*, and it appears that *G. signata* may be a common parasitoid of these mealybugs.

The large number of specimens that are now available for study show little variation from the original small type-series, except for overall size. The female ranges from about 0,6 to just more than 1 mm in length. Annecke & Mynhardt (1970) mention that paratergites were not clearly visible in the few slide-mounted type-specimens, and that these structures are seemingly fused with the inner margins of tergum VIII. This condition is also present in the eight cleared slide-mounted specimens of the additional material mentioned below.

The dominantly reddish-orange to red colour of both sexes and the characteristic shape and colour pattern of the antennal scape readily separate this beautiful species from its congeners.

MATERIAL EXAMINED. Type-series of *G. signata* and the two series from Edenville (Orange Free State) and Adelaide (Cape Province) ex *Coccidohystrix*, as detailed in Prinsloo (1981), in addition to the following specimens: SOUTH AFRICA: Cape Province: Albertina District, iii.1970, ex *Coccidohystrix* sp. on *Chrysocoma tenuifolia*, 1 ♀ 3 ♂ (T 3371); Stilbaai, iii.1970, with diaspidine scale insects on *Relhania cuneata*, 2 ♀ (T 3408); Garcia Pass, xi.1972, ex undetermined mealybug on *Cliffortia* sp. 6 ♀ 9 ♂ (T 6344); Jeffreys Bay, iii.1970, ex ?*Spinococcus* sp. on *Chrysocoma tenuifolia*, 5 ♀ 1 ♂ (T 3394); Riviersonderend, x.1969, with *Fillipia* sp. on *Chrysocoma* sp., 5 ♀ (T 3203). All specimens collected by H. P. Insley.

## *Gyranusoidea dilatata* Annecke & Mynhardt, fig. 12

**Gyranusoidea dilatata** Annecke & Mynhardt, 1970: 40–42.

*Gyranusoidea dilatata* was originally described from a single series from the Cape and was reared, according to Annecke & Mynhardt (1970), from an undetermined mealybug. It has been established since that the host sample probably represented a species of *Octococcus*. Three additional series, all from the Cape, are here recorded. The specimens in these series (T 6165, T 5768 and T 3952) agree well with the types, especially with the holotype from which they differ insignificantly.

A fourth series, determined by Annecke and Mynhardt, is also available for study. This series contains exactly the same data as the type-series, apart from the accession number which is T 3315. I am not certain of the identity of the three females in this series. They resemble the holotype and other additional material in many aspects, including the distinct shape and colour pattern of the antennal scape, as illustrated in fig. 12. But they differ as follows: colour generally much duller, the various markings on the body not prominent and clearly demarcated; antennal pedicel about as long as the basal funicle segment, not shorter; club relatively longer, about as long as the distal two and a half funicle segments together; frontovertex broader, the head about 1,8 times as wide as the latter at the median ocellus (in the other material the head ranges from about 2,5–2,8 times as wide as the frontovertex); ocelli a little further away from the orbital margins; sculptural cells on head, especially on the sides of the face, much larger. Whether these differences can be attributed to intraspecific variation, is doubtful. But because these three specimens were reared with the type material of *G. dilatata* I am hesitant to assign them to a new species until sufficient material is available that would enable a detailed study of the intraspecific variation in *G. dilatata*.

Like many of the other species dealt with here, *G. dilatata* can be separated by its colour, which is mostly brownish in the female and black in the male, and by the characteristic shape and markings of the scape as in fig. 12.

MATERIAL EXAMINED. Type-series of *G. dilatata* as detailed in Annecke & Mynhardt (1970), in addition to the following four series: SOUTH AFRICA: Cape Province: Fransch Hoek Mountains, xii.1979, S. Neser, ex *Octococcus* sp. on *Cliffortia* sp. 2 ♀ 1 ♂ (T 6165); Goudini Spa, x.1978, S. Neser, ex *Lenania africana* (Brain) on *Cliffortia* sp. prob. *ruscifolia*, 4 ♀ 2 ♂ (T 5768); Swellendam, x.1971, H. P. Insley, ex *Lenania* sp. on *Cliffortia* sp. 3 ♀ (T 3953); Villiersdorp, ii.1969, H. P. Insley, ex *?Octococcus* sp. on *Passerina vulgaris*, 3 ♀ 10 ♂ (T 3315), det. D. P. Annecke and M. J. Mynhardt.

### *Gyranusoidea citrina* (Compere), fig. 12

**Gyranusa citrina** Compere, 1938: 315–317.

**Gyranusoidea citrina** (Compere): Compere, 1947: 17; Annecke & Mynhardt, 1970: 36.

No additional material of this species has been recorded since it was described from Kenya by Compere in 1938. Material determined by Compere is at hand, and this had been compared with specimens from South Africa and Angola in the National Collection of Insects, Pretoria.

The additional material resembles the two paratypes and the description of *G. citrina* closely, differing only in some female specimens in the antennal markings. In these specimens (from series T 3892, T 4670 and T6345) the black patch on the scape does not extend over the entire width of the segment, but is narrowly separated from the dorsal margin of the scape; also, in some specimens the radicle is not whitish as in the types, but a little brownish, but not black as in the closely related *G. munda*.

*G. citrina* resembles *G. munda* very closely in colour and structure. Annecke (1969) provided characters for the separation of these two species, the most important of which are the antennal shape and the colour of the antenna, as mentioned in the foregoing key.

MATERIAL EXAMINED. One female card-mounted specimen labelled 'PARATYPE' but not mentioned in the original description, with the following data: 'Kenya Colony, Kuru, 24.iv.1923, Dr H. C. James, ex *Pseudococcus virgatus* (now known as *Ferrisia virgata*) on *Coffea arabica*'; another card-mounted female from Kenya with data as follows: 'Kianzaba, 17–2–1937, A. R. Melville ex *Pseudococcus kenyae* (now known as *Planococcus kenyae*), det H. Compere'; SOUTH AFRICA: Jozini, Zululand, iii.1973, G. L. Prinsloo, ex undetermined mealybug on *Acacia* sp., 3 ♀ 1 ♂ (T 4670); Vivo, Transvaal, xii.1978, C. Kok, ex *Allococcus quaesitus* (Brain) on *Acacia stuhlmannii*, 2 ♀ (T 6345); St. Lucia Game Reserve, Zululand, viii.1969, H. P. Insley, ex *Paracoccus* sp. on *Helichrysum krausii*, 2 ♀ 1 ♂ (T 3165); ANGOLA: Cubal area, viii.1971, S. W. Broodryk, ex undetermined mealybug on *Cassia* sp., 1 ♀ (T 3892).

### *Gyranusoidea munda* Annecke, fig. 12.

**Gyranusoidea munda** Annecke, 1969: 457–458; Annecke & Mynhardt, 1970: 36.

*Gyranusiodea munda* was originally described as a parasitoid of mealybugs associated with citrus at Zebediela in the northern Transvaal. Apart from a single specimen from Natal there are no further records available of this species. Its close relationship with the previous species is mentioned above.

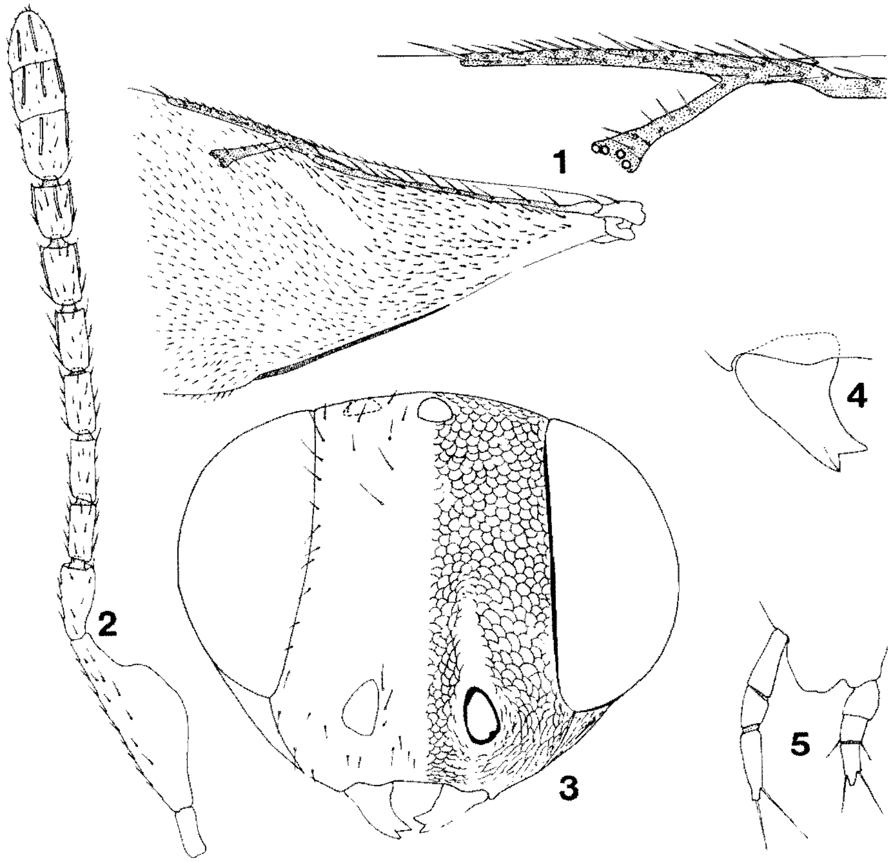
MATERIAL EXAMINED. The type-series of *G. munda* as detailed in Annecke (1969) in addition to the following specimen: SOUTH AFRICA: Jozini, Zululand, Natal, iii.1973, G. L. Prinsloo, ex undetermined mealybug on *Combretum molle*, 1 ♀ (T 6346).

## ***Gyranusoidea litura*** spec. nov., figs 1–5, 12

Superficially, this new species which is known only from the female, resembles *G. munda* and *G. citrina*, but differs from them in a number of distinct characters of which the following are the most obvious: body not entirely yellowish, but with the mesosternum and middle coxae boldly marked with black in contrast to the pale remainder of the thoracic venter; postmarginal vein unusually long in relation to the short marginal vein; basal two-thirds of scape entirely dark, the base not marked with white.

FEMALE. Length: about 1,25–1,5 mm. Colour: head with frontovertex dark yellow, this colour fading abruptly to white on the face, the latter concolorous with the genae and temples; occiput largely pale yellow dorsally, dark ventrally; ocelli red; antenna with radicle blackish-brown; scape with basal two-thirds or so black, white distally, the pattern as in fig. 12; remainder of antenna blackish-brown except for the extreme distal end of the pedicel which is whitish and for the distal one or two funicle segments and the club which are slightly paler than the preceding funicle segments in some specimens; thorax with pro- and mesonotum much the same as the frontovertex, in some specimens somewhat brownish-yellow, the concealed centre of the anterior surface of the pronotum blackish; tegulae, metanotum, propodeum largely, and sides of thorax, whitish, the mesopleura semitranslucent; venter of thorax whitish except for the mesosternum which is blackish; gaster with base, sides and venter whitish, the dorsum brown; legs whitish except the middle coxae which are blackish in contrast, and for the inner aspect of the extreme distal end of the middle femur which has a small, narrow blackish marking; wings mostly hyaline, the disc of fore wing just below the distal third of the submarginal vein, and below the postmarginal vein, slightly but clearly infuscated.

Head much the same as in *G. munda* and *citrina*; in dorsal view with anterior margin evenly rounded, the fronto-occipital margin acute; head about twice as wide as frontovertex (1,9–2,1:1), the latter approximately parallel-sided; ocelli in about a right-angled triangle, the lateral pair about their own diameter from the orbital margins; head in frontal view (fig. 3) a little more than 1,2 times as wide as its median length; toruli with upper margins a little above the lower eye limits; scrobes short, well defined but shallow, their lateral margins not sharp, almost parallel to each other, separated their entire length by a narrow, weak prominence. Maxillary and labial palpi each with three segments, as in fig. 5; mandibles clearly bidentate, the teeth sharp (fig. 4). Head evenly sculptured with small semicircular cells, as in fig. 3, these cells each about the size of an ommatidium; eyes densely and finely pubescent. Antenna (fig. 2) characteristic of the genus, long, slender, the scape broadly expanded ventrally for most of its length, only the distal end cylindrical; scape about 2,75 times as long as its greatest width (2,6–2,8:1), about 2,7–3,0 times as long as the pedicel, the latter slightly longer



Figs 1–5. *Gyranusoidea litura* spec. nov., female paratypes. 1. Basal part of fore wing, with venation enlarged (T 5069–1). 2. Antenna (T 5904–1). 3. Head, anterior view, showing sculpture on the one side (T 5069–1). 4. Mandible (T 5069–2). 5. Maxillary and labial palpi (T 5069–2.)

than the basal funicle segment; all funicle segments longer than wide and subequal in size; club about as long as the distal two and a half funicle segments together; antennal setation as in fig. 2.

Thorax generally much as in the other species of the genus, normally vaulted, the scutellum more or less as long as wide, the axillae slightly raised, meeting mesally; mesonotal sculpture different from that of *G. munda* and *citrina*, the cells much the same in size as those on the head, except for those on the apical half or so of the scutellum which are larger than those on the remainder of the mesonotum; mesoscutum densely setose, the setae strong, appearing silvery-white in dried specimens; scutellum densely setose, with two subapical pairs of long, dark setae. Legs long and slender, the middle tibial spur subequal in length to the basal tarsal segment of the middle leg.

Fore wing characteristic of the genus, not particularly narrow, about 2,3–2,5 times as long as wide; postmarginal vein extremely long, ending far beyond the apical level of the stigmal vein, more than three times as long as the short marginal vein, as in fig. 1; basal triangle of wing disc (fig. 1) densely setose, the speculum broad, extending obliquely from the venation more or less half way down the wing.

Abdomen typical of the genus and other anagyrine genera, triangular in shape, the cercal plates placed near the base of the gaster; no clear indication of the presence of paratergites in cleared, slide-mounted specimens; ovipositor, as seen through the derm, less than half the length of the gaster, about half as long as middle tibia; gonostyli elongate, triangular in shape, acutely pointed apically, protruding slightly at the apex of the gaster.

MATERIAL EXAMINED. ♀ Holotype, 10 ♀ paratypes, with the following data: SOUTH AFRICA: Cape Province: Somerset West, viii.1978, S. Neser, ex *Pseudococcus longispinus* (Targioni-Tozzetti) on *Hedera* sp., ♀ holotype, 3 ♀ (T 5904); same data except 1 ♀ (T 5901); Stellenbosch, vii.1978, S. Neser, ex *?Paracoccus burnerae* (Brain) on *Nerium oleander*, 1 ♀ (T 6057); same data except: ix.1976, ex undetermined mealybug, 4 ♀ (T 5069); Kareedouw, 1.1979, S. Neser, ex *?Allococcus* sp. on *Chrysanthemoides monilifera*, 1 ♀ (T 5882).

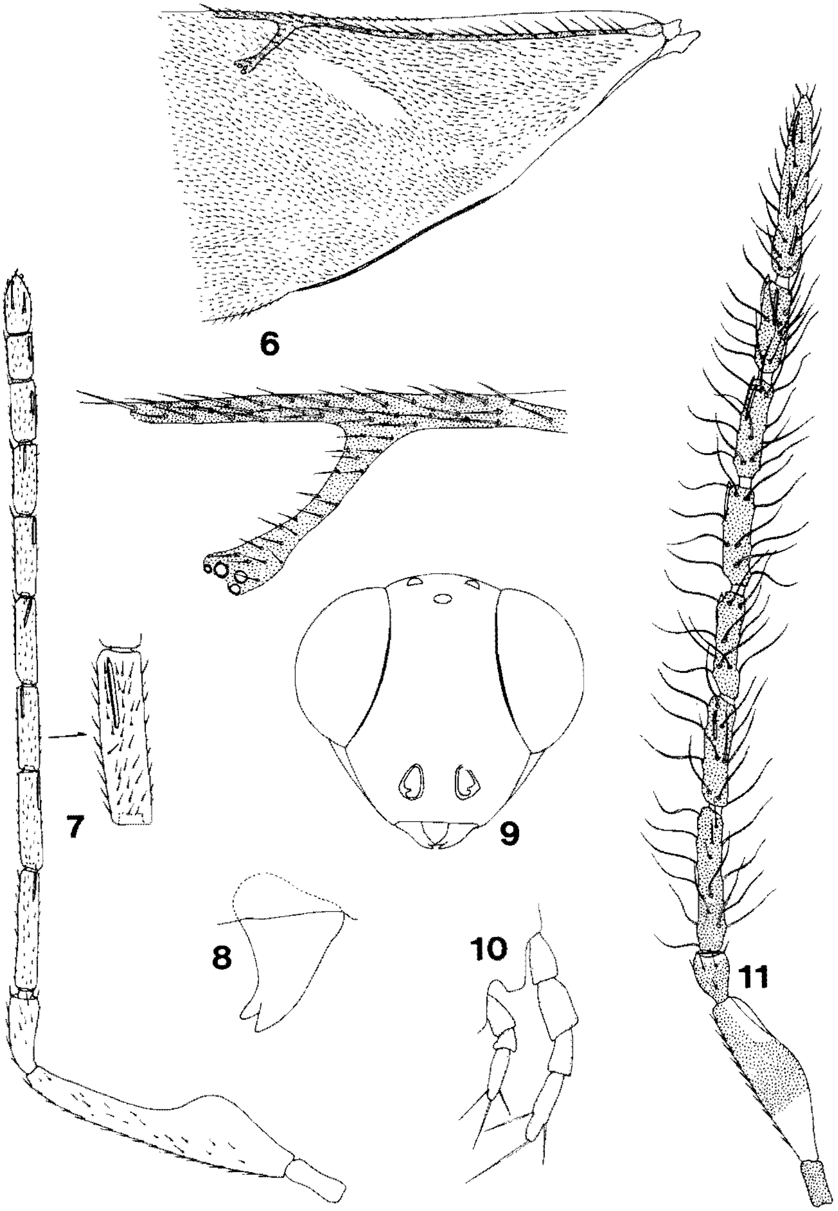
The following two specimens have not been included in the type-series: SOUTH AFRICA: Stellenbosch, vi.1978, S, Neser, ex undetermined mealybug on *Nerium oleander*, 1 ♀ (T 5797); Tzaneen, Transvaal, i.1980, R. Meiswinkel, no host data, 1 ♀ (T 6042).

## ***Gyranusoidea separata*** spec. nov., figs 6–12.

This is the second African species which has the maxillary palpi four-segmented, not three-segmented. The other species with four segments in the maxillary palps is *G. dilatata* to which *G. separata* appears to be most closely related. Antennal shape is generally similar in these two species, the flagellum being long and slender, almost filiform, the scape broadly expanded with the distal part distinctly cylindrical. The most obvious character which separates the new species from *G. dilatata* is the uniformly yellowish colour of the body and legs, and the colour pattern of the antennal scape.

FEMALE. Length: about 2,0 mm. Colour: head, body and legs uniformly pale yellow except for the tarsal tips and the concealed median area of the anterior surface of the pronotum which are blackish-brown; anterior margin of mesoscutum very narrowly marked with blackish; antennal radicle blackish-brown, the scape white with a distinct blackish-brown pattern as shown in fig. 12; remainder of antenna blackish-brown except for the distal end of the pedicel which is whitish; wings hyaline, the venation pale brown.

General shape of head a little different from its congeners, appearing less hemispherical in dorsal view, the anterior margin in this view only slightly rounded, the frontovertex not parallel-sided but broadening anteriorly; head 2,7–2,8 times as broad as frontovertex at median ocellus; ocelli in about a right-angled triangle, the lateral pair separated from the eye margins by about their own diameter; occipital margin



Figs 6–11. *Gyranusoidea separata* spec. nov., paratypes. 6. Basal part of fore wing, with venation enlarged (♀ T 4482–1). 7. Antenna, with third funicle segment enlarged (♀ T 4482–1). 8. Mandible (♂ T 4482–2). 9. Head, anterior view (♀ T 4482–1). 10. Maxillary and labial palpi (♂ T 4482–2). 11. Antenna (♂ T 4482–2).

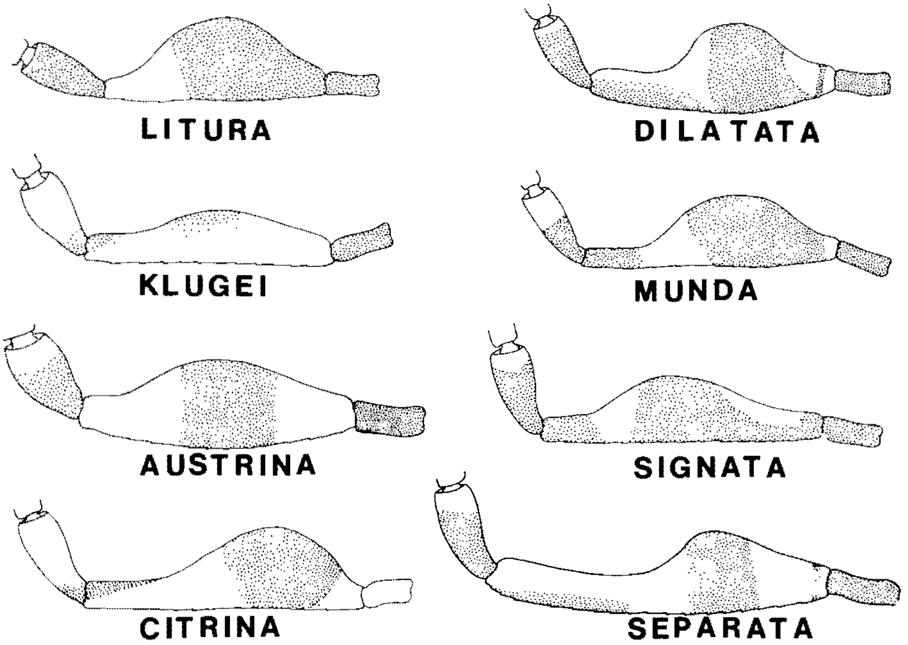


Fig. 12. *Gyranusoidea* species, showing differences in shape and colour patterns of the female antennal radicle, scape and pedicel.

acute, the occipital surface appearing less concave than in the other species of the genus; head in frontal view (fig. 9) about 1,2 times as wide as its median length; toruli with upper limits a little below the lower eye margins; scrobes impressed on face as two shallow furrows with rounded lateral margins, converging somewhat but not confluent dorsally, separated basally by a convex prominence which flattens towards the upper limits of the scrobes. Maxillary palpi each with four segments, the labial palpi each with three, as in fig. 10; mandible clearly bidentate as in fig. 8. Head with sculpture fine, lending the integument a rather matt appearance in dry specimens under low magnification, the sculptural cells not uniformly semicircular as in many of the other species in the genus, but somewhat reticulate; frontovertex and face very finely setose, the setae hardly visible under low magnification, the eyes densely pubescent. Antenna (fig. 7) unusually slender; scape broadly expanded basally, about four times as long as its greatest width, the remainder of the scape forming a narrow cylinder; pedicel about one-fourth the length of scape, plainly shorter than the basal funicle segment; funicle perfectly cylindrical, the segments each plainly longer than wide, equal in width, gradually decreasing in length towards the club; club not wider than the funicle, with three elongate, parallel-sided segments resembling those of the funicle; all funicle and club segments with rhinaria; flagellum very finely setose, lending the antenna a rather smooth appearance in dry specimens.

General structure of thorax as in its congeners; mesonotum rather flat dorsally, the axillae not raised, the scutellum a little longer than wide, shield-like in shape;

mesonotal sculpture fine, the integument appearing much like that of the head under low magnification, but the cells a little different in shape, somewhat irregular in outline; mesonotum densely and evenly covered with fine, short, appressed setae appearing whitish in dry specimens, the apex of the scutellum with a pair of strong, erect, dark brown setae. Legs not as long and slender as in most species of the genus, the middle tibial spur shorter than the basal tarsal segment of the middle leg. Fore wing about 2,3 times as long as broad; venation as in fig. 6, the postmarginal vein plainly longer than the marginal, only a little longer than the stigmal vein; basal triangle of wing disc (fig. 6) very densely setose, the speculum interrupted twice, forming two bare patches as shown in fig. 6.

Abdomen longer than thorax, triangular in shape and typical of the genus; paratergites, like in the case of *G. dilatata*, well developed, clearly visible in the single slide-mounted paratype; apical sternite acute apically, reaching the apex of the gaster; gonostyli shortly exserted at gastral apex: ovipositor and associated plates distorted in the single slide-mounted paratype, these structures not suitable for measurement.

MALE. Colour: head with frontovertex orange, this colour fading to yellow along the inner orbital margins and on the face, genae and temples; the triangle formed between the anterior and lateral ocelli dark brown; occipital surface yellowish, the central area suffused with brown; antenna much the same as in the female, the scape with a rather similar pattern of white and blackish-brown, as in fig. 11; anterior surface of pronotum largely blackish-brown, except for the sides which are whitish-yellow; dorsal collar of pronotum bicolorous, forming a whitish-yellow transverse band anteriorly which is bordered behind by a blackish band; mesonotum largely dark brown, fading to yellow at the sides of the mesoscutum; tegulae whitish; metanotum and propodeum yellowish with uneven brown suffusions; sides and venter of thorax pale yellow, much the same as the face; legs concolorous except for the larger part of the tarsi which are suffused with brown; dorsum of gaster largely blackish, fading at the sides and apex, the underside concolorous with the underside of the thorax; wings hyaline.

Head, in dorsal view about twice as wide as frontovertex, the ocelli in an obtuse-angled triangle, the lateral pair separated from the eye margins by a little more than their own diameter; head in frontal view with toruli high on face, their lower limits just below the lower level of the eyes, separated from each other by less than their greatest diameter at their smallest interval, and by more than their greatest diameter from the mouth margin. Antenna much as in the other species of the genus, as shown in fig. 11, the funicle with six elongate segments and an unsegmented club, the flagellum with whorls of long, curved setae. Sculpture of head and thorax a little coarser than in the female, the cell margins somewhat thickened and raised, giving the integument a coarser appearance than in the female. Structurally otherwise much as in the female except for sex characters.

MATERIAL EXAMINED. ♀ Holotype, 1 ♀ , 2 ♂ paratypes with the following data: SOUTH AFRICA: Uniondale, Cape Province, xi.1972, H. P. Insley, ex undetermined mealybug on *Cliffortia stricta* (T 4482).

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## REFERENCES

ANNECKE, D. P. 1969. Records and descriptions of African Encyrtidae – 5 (Hymenoptera: Chalcidoidea). *Journal of the Entomological Society of Southern Africa* **32:** 443–459.

ANNECKE, D. P. & M. J. MYNHARDT. 1970. New species of *Gyranusoidea* Compere, 1947 and *Clausenia* Ishii, 1923 from South Africa. *Journal of the Entomological Society of Southern Africa* **33:** 35–47.

KERRICH, G. J. 1982. Further systematic studies on Tetracnemine Encyrtidae (Hym., Chalcidoidea) including a revision of the genus *Apoanagyrus* Compere. *Journal of Natural History* **16:** 399–430.

NOYES, J. S. 1980. A review of the genera of Neotropical Encyrtidae (Hymenoptera: Chalcidoidea). *Bulletin of the British Museum (Natural History). Entomology series* **41:** 107–253.

PRINSLOO, G. L. 1981. Annotated records of economically important Chalcidoidea (Hymenoptera) from South Africa. II. *Phytophylactica* **13:** 101–103.

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